Improving Accessibility in Web Applications

Session 209

These are confidential sessions—please refrain from streaming, blogging, or taking pictures.

At the convention center, a movie will be placed here

Improving Accessibility in Web Applications

James Craig
Software Engineer, Mac OS X Server

What You'll Learn

Improving accessibility in web applications

- Universal design
  - Improves the usability and accessibility of most products
  - Increases search engine optimization (SEO)
  - Techniques for keyboard focus management
- Accessibility
  - Variety of disabilities and assistive technologies
  - Common sense accessibility principles
  - Techniques for making web applications accessible

Accessibility?

Universal Design

Design that works for everyone

(WOMAN)
I THOUGHT SHE WAS NICE
[Plane Passing in the Distance]

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Universal Design Techniques

Applied to the web

Universal Design Techniques

Applied to the web

Semantic Markup

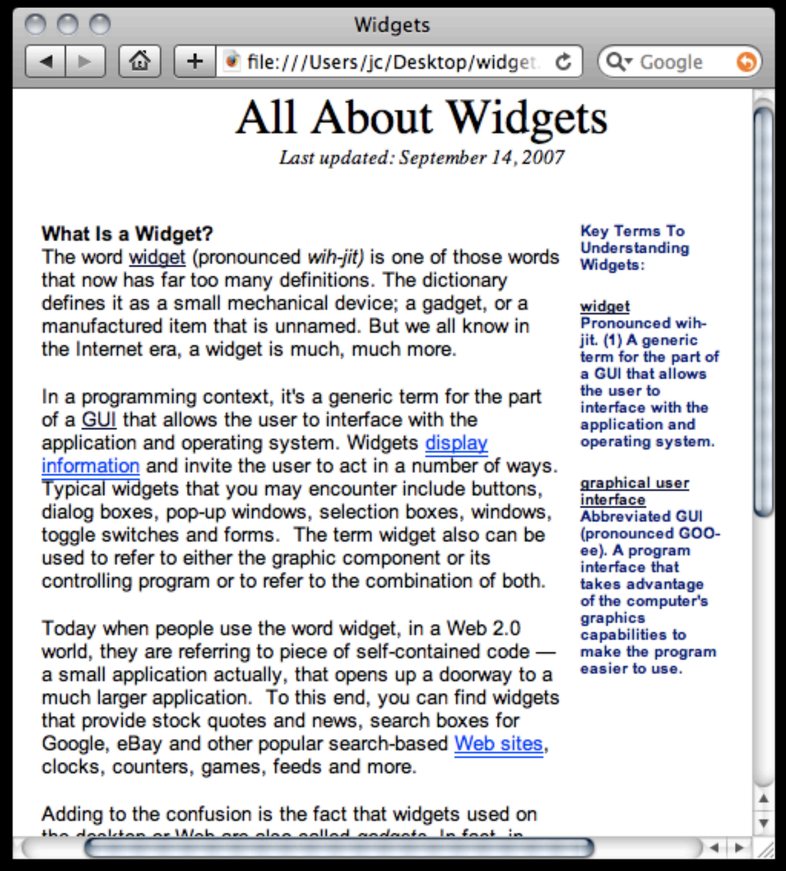
Progressive Enhancement

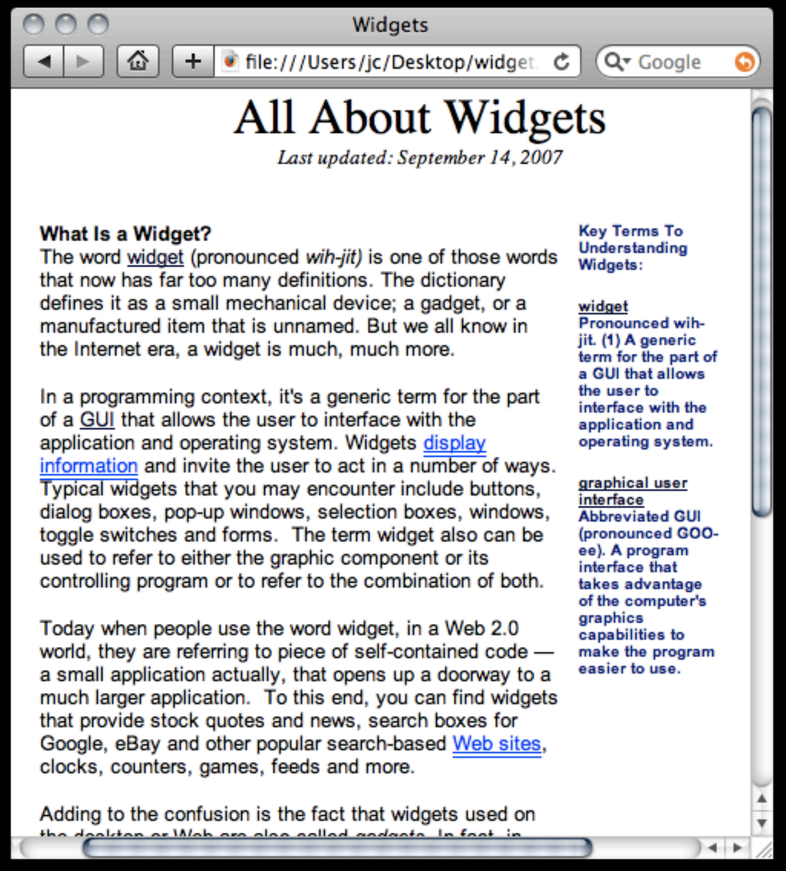
Captions and Transcriptions

Full Keyboard Access

Semantic Markup

Which is which?

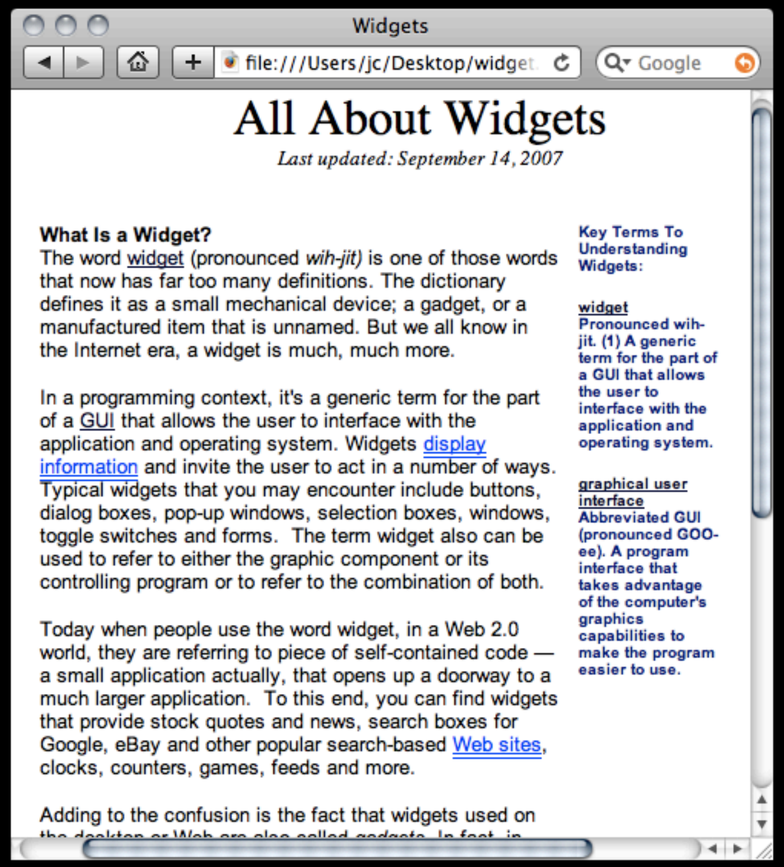




Semantic Markup

What NOT to do

```
<div style="font-size: 24px;">
     All About Widgets
</div>
```

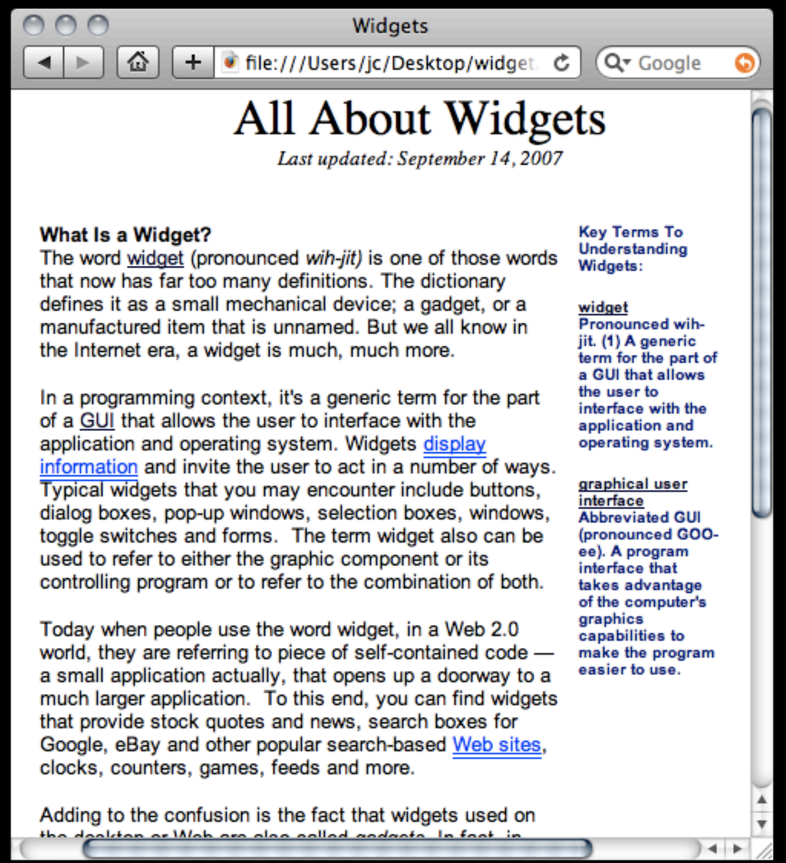


Semantic Markup

The right way

```
<div style="font-size: 24px;">
     All About Widgets
</div>

<h1> All About Widgets </h1>
```



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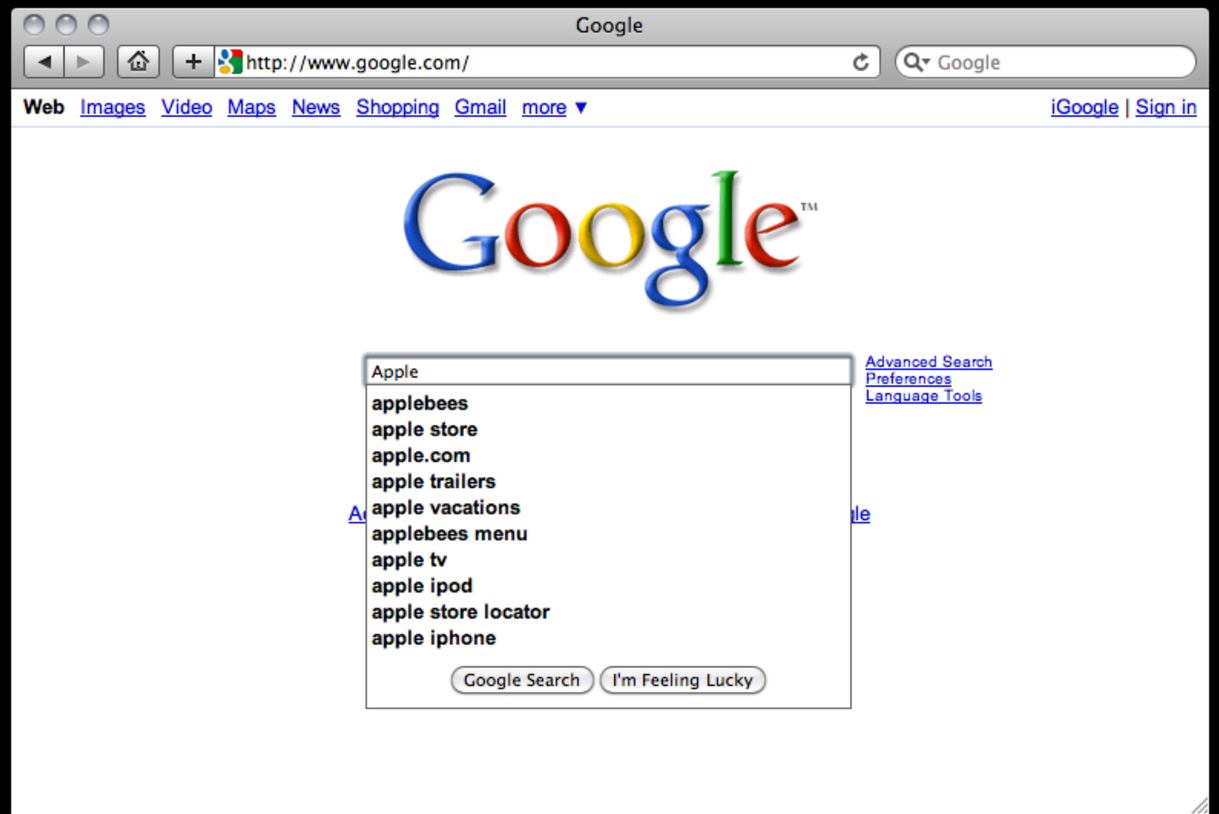
Example



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Full Keyboard Access

nano-chromatic

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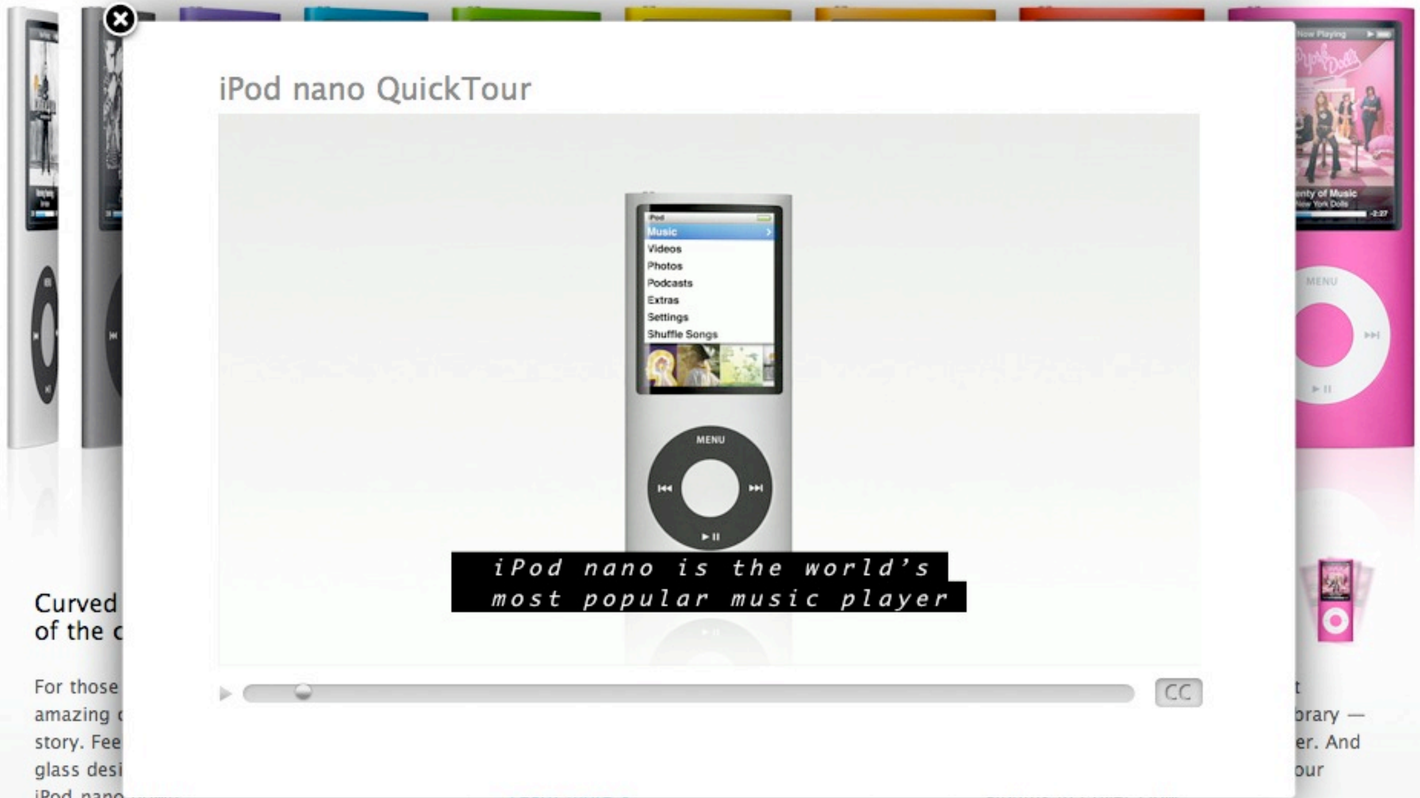

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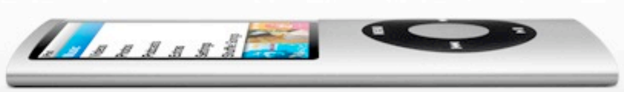

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"CNET TV added captions to its videos and its Google traffic went up 30%."

Kevin Erler, Automatic Sync Technologies

Universal Design Techniques

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Captions and Transcriptions

Full Keyboard Access

Universal Design Techniques

Applied to the web

Full Keyboard Access

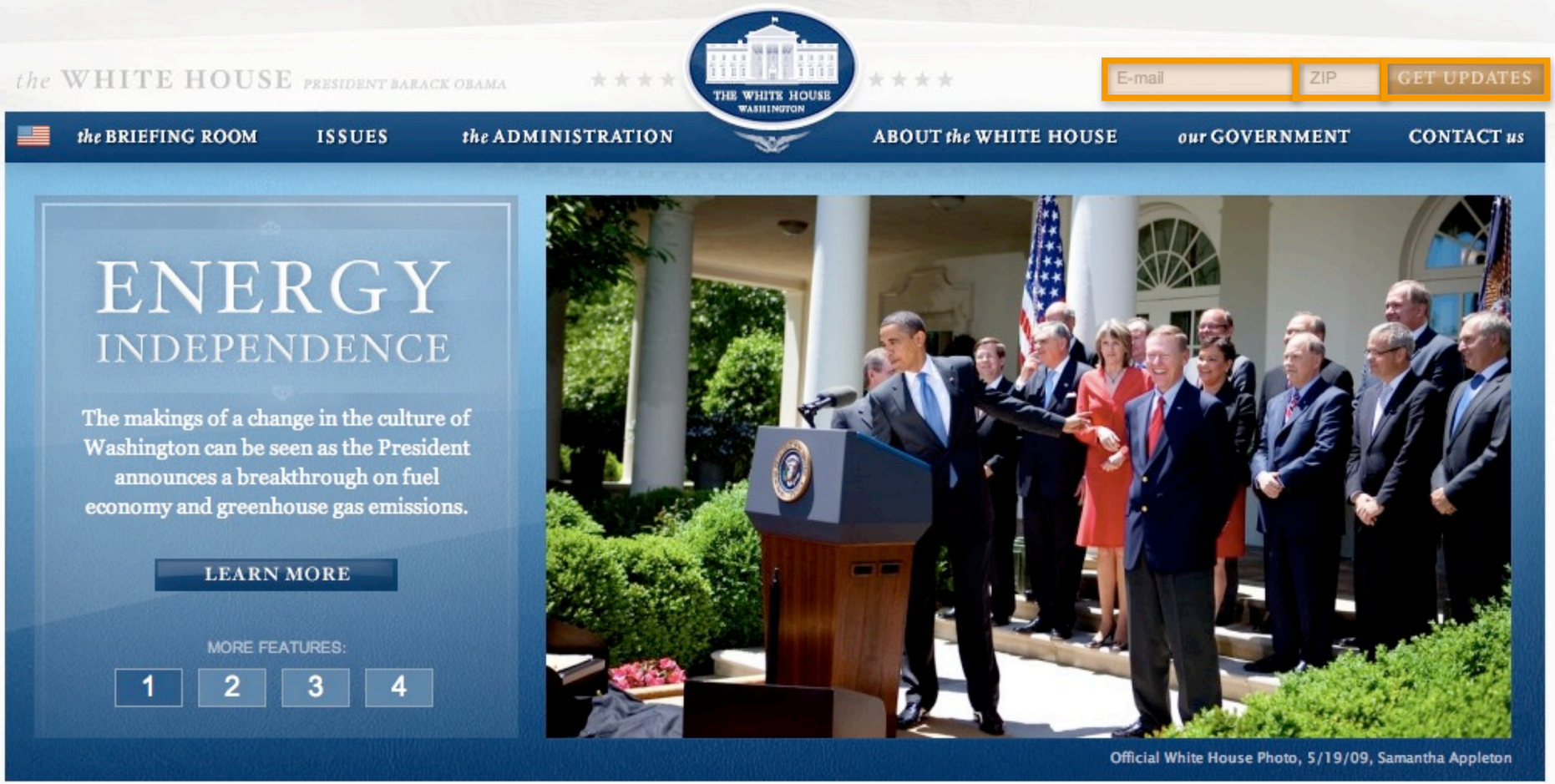
Common Mistakes

Tab Order in Browsers

Demonstration

Full Keyboard Access

Maintain a visible keyboard focus



Full Keyboard Access

Use a logical tab order

Tab Order in Browsers

Controlling tab order with the “tabindex” attribute

- Original use of “tabindex”
  - Only applied to links and form elements
  - Allowed change of *default tab order*

- Extensions to “tabindex”
  - Now applies to ***any*** DOM element
  - Add an element to (or remove it from) the default tab order

Demo

Keyboard access and focus management

Chris Fleizach
Software Engineer, Mac OS X VoiceOver

Full Keyboard Access

Summary

- Avoid common mistakes
  - Invisible keyboard focus
  - Illogical tab order
- Extensions to HTML “tabindex” attribute
- Demo
  - Maintained a visible keyboard focus
  - Managed focus using the “roaming tabindex” technique

Enhancing Accessibility

Special considerations for persons with disabilities

Enhancing Accessibility

Special considerations for persons with disabilities

Assistive Technology

Accessibility Principles

Web App Accessibility

Assistive Technology

- Hardware
  - Alternate pointing devices
  - Alternate keyboard devices
  - Braille display
- Software
  - Speech output (text-to-speech)
  - Dictation or speech command
  - Utilities: sticky keys, mouse keys, etc.
  - Screen readers

Enhancing Accessibility

Special considerations for persons with disabilities

Assistive Technology

Accessibility Principles

Web App Accessibility

Accessibility Principles

Web content accessibility guidelines 2.0 (WCAG2)

1. Perceivable
2. Operable
3. Understandable
4. Robust

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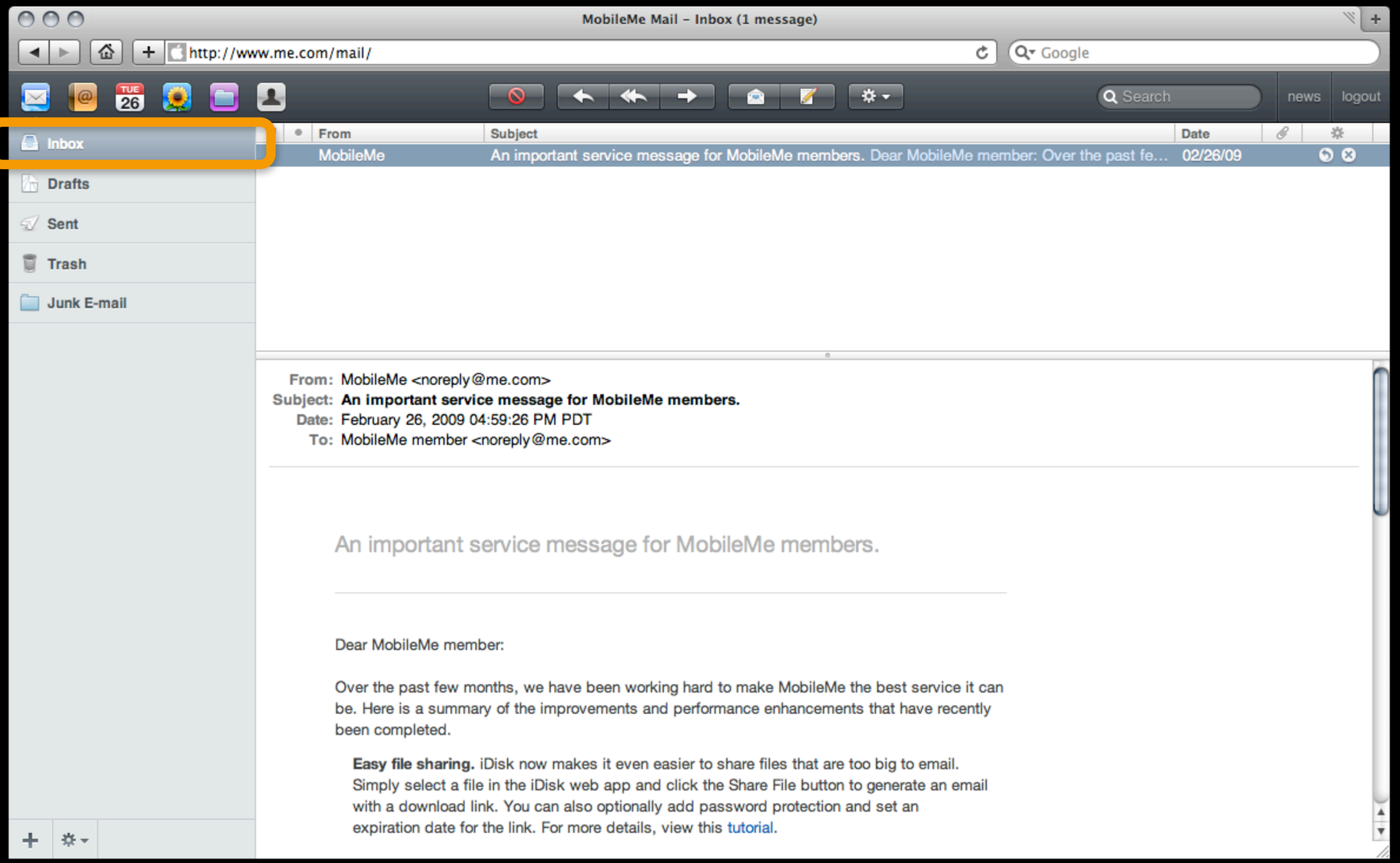
New Problems

WAI-ARIA 1.0

Demonstration

New Problems

Accessibility for web applications?



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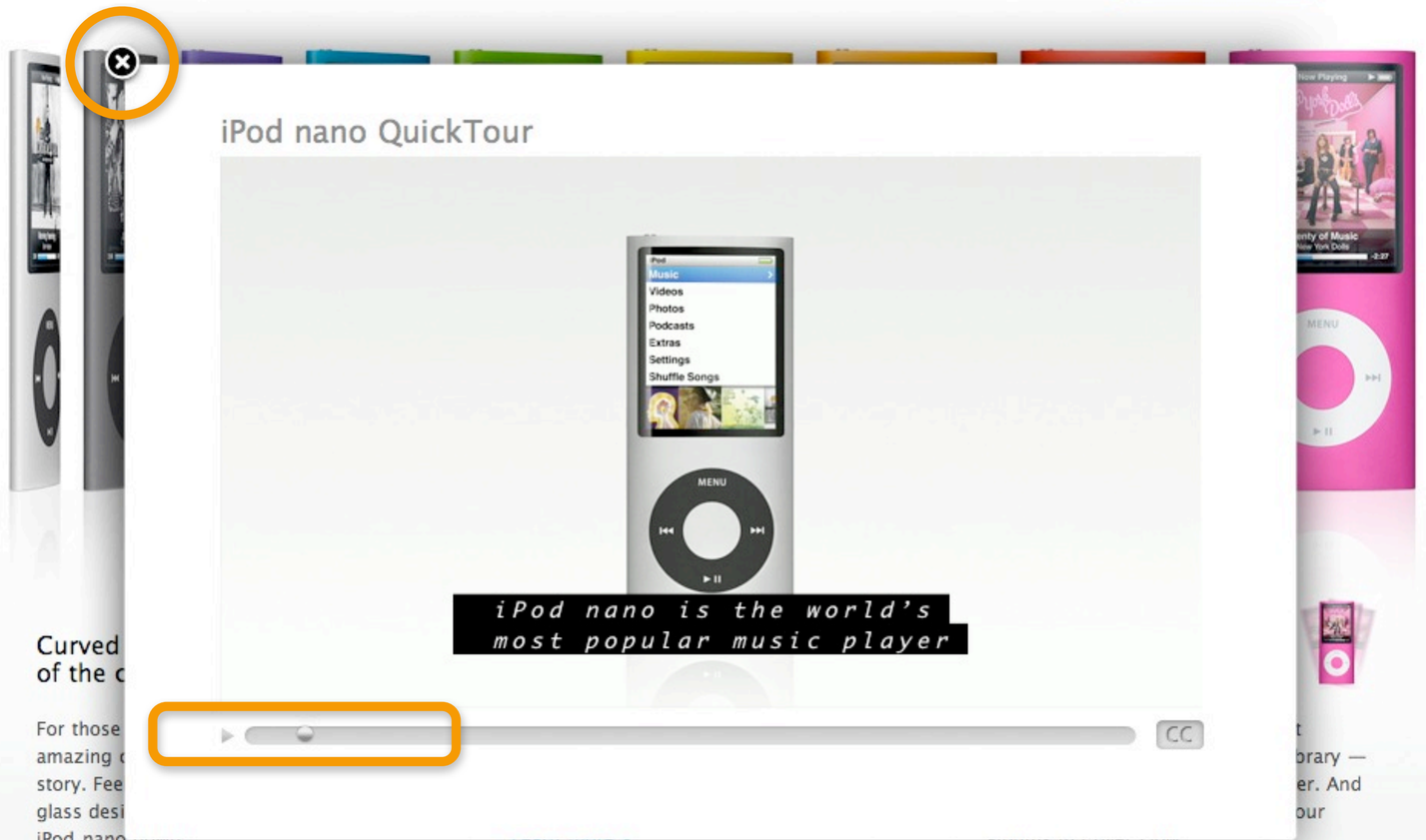

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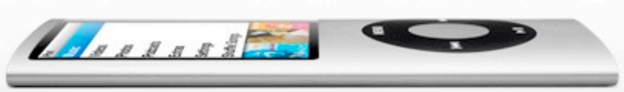

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WAI-ARIA 1.0

Accessible Rich Internet Applications

W3C Web Accessibility Initiative

“ARIA allows web pages, or portions of web pages, to declare themselves as applications…”

WAI-ARIA 1.0 Last Call Working Draft, 24 February 2009
http://w3.org/TR/wai-aria/

Using WAI-ARIA 1.0

Accessible Rich Internet Applications

- Manage keyboard focus on complex UI widgets
- Assign semantic roles
- Manage states and properties

Manage Keyboard Focus

Make web applications operable

Assign Semantic Roles

Make interface elements understandable

Manage States and Properties

Make controls perceivable

Demo

Using VoiceOver and WAI-ARIA

Chris Fleizach
Software Engineer, Mac OS X VoiceOver

What You've Learned

Improving accessibility in web applications

- Universal design
  - Improves the usability for everyone
  - Specific techniques for keyboard focus management

- Web accessibility
  - Variety of disabilities and assistive technology
  - Accessibility principles: perceivable, operable, understandable, robust
  - Specific techniques for web application accessibility

Summary

- Accessibility is the right thing to do
- Accessibility affects everyone
- Accessibility helps you

Related Sessions

Advanced Accessibility: Best Practices and New APIs in Snow Leopard	Mission Friday 2:00PM

Labs

iPhone Accessibility Lab	iPhone Lab D Friday 2:00PM
Mac OS X Accessibility Lab	OS X Lab D Friday 2:00PM

More Information

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Apple Accessibility
http://www.apple.com/accessibility/

Safari Dev Center
http://www.apple.com/safari/

WAI-ARIA 1.0
http://w3.org/TR/wai-aria/

O'Reilly Book: "Universal Design for Web Applications"
http://ud4wa.com/book/

Q&A

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More Information

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